



**UNITED STATES DEPARTMENT OF COMMERCE**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/386,112	08/30/99	BRUCE	M AMDA.261PA

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MM92/0130

EXAMINER

TURNER, S

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 01/30/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/386,112

Applicant(s)

Bruce et al

Examiner

Samuel A. Turner

Group Art Unit

2877



☒ Responsive to communication(s) filed on 28 Dec 2000

☒ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-16 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-16 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☒ The proposed drawing correction, filed on 28 Dec 2000 is ☒ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

### Office Action

#### Rejections Under 35 U.S.C. § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-16 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant discloses his apparatus on page 10, lines 12-24 in relation to figure 2. Applicant then points to the text of *Confocal Scanning Microscopy and Related Imaging Systems* and supplies pages 232 and 233 from the text. However, how the light reflected from the back of the semiconductor die is not disclosed. No polarization orientations are disclosed, no light scattering is disclosed, and while the above pages teach a confocal interferometer no interferometer structure is disclosed in the instant application. Nowhere in the specification explains how the light beam incident on the back of the semiconductor die is reflected with information of defects encoded therein.

### **Rejections Under 35 U.S.C. § 103**

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 7, and 9-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Marx et al(5,880,838).

Marx et al teach a light source(306), first beam-splitter(310), sample(304), second beam-splitter(406), and differential detectors(408,410), see figure 4. The difference between the TE and TM modes allows detection of the surface structures. Not taught is a defect detection embodiment or thinning any semiconductor dies.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to Use the Marx apparatus when the defects desired to be detected are height defects. With regard to thinning the die beforehand applicant points out that such thinning is well known in the art. See page 3, line 18+ of the specification.

### **Response to Arguments**

Claim 1 is "a method for detecting a defect at a surface in the die". Claims 10

and 11 are apparatus claims for detecting a defect at a surface in the die. The question is not whether the back side of the die can reflect the "second beam of light" but how can any of the information on defects in the die be encoded in the reflected beam if the first light beam is reflected at the surface of the back side? As claimed no light enters the die. Applicant argues that various defects, surfaces, and other portions of the die can cause reflection, however as the light is reflected from the back side no light reaches these features. As for the examiners questions about polarization and scattering, as the system of figure 2 is disclosed as using polarized light then maybe the defects effected the polarization, however as applicant points out this is not claimed or specifically disclosed.

Applicant argues that one of ordinary skill in the art would recognize what the interferometer structures are. However, no interferometer is disclosed. Figure 2 is not disclosed as an interferometer, or at best is incomplete. There is only one reflection claimed and disclosed, that from the back side of the die which is the "second beam of light". Nothing is disclosed or claimed which will interfere with the second beam.

Finally applicant argues that by comparison with a standard or reference an indication of a defect can be detected, however applicant is silent in the claims and the specification on how the defects are encoded into the second beam of light if, as claimed, the light never reaches any of the defects.

As for the Marx reference; the skilled artisan would have recognized that

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defects in the microstructure would be detected by measuring the microstructure.

The Marx device is used for quality control, which is the detection of defects.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire **THREE MONTHS** from the date of this action. In the event a first response is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel A. Turner whose telephone number is **(703) 308-4803**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font, can be reached on (703) 308-4881.

The fax phone number for this Group is (703) 308-7722. The faxing of papers related to this application must conform with the notice published in the Official Gazette, 1096 O.G. 30 (15 November 1989). The Group receptionist telephone number is (703) 308-0956.

Any inquiry of a technical nature regarding reissues, petitions, and terminal disclaimers should be directed to Ed Glick whose telephone number is (703) 308-4858, Hien Phan whose telephone number is (703) 308-7502, or Ed Westin whose telephone number is (703) 308-4823.

Any other inquiry of a technical nature, and all inquiries of a general nature including those relating to the status of this application or any patent term adjustment should be directed to TC2800 Customer Service Office whose telephone number is (703) 306-3329.



Samuel A. Turner  
Primary Examiner  
Art Unit 2877

SAT  
January 26, 2001